

890001

**OPEN FILE**

REPORT ON EL 29/92

HEEMSKIRK AREA

JUNE 30, 1994

**MICROFILMED**  
FICHE No.013226-

John, The Duke of Avram, Member Aus.I.M.M.

MINES		
FILE REF. EL29192		
- 8 AUG 1994		
DOC. REF.		
OPENER	FOR ACTION	FOR INFO.
SEE	FOLIO 34	
RECORD TO		DATE

94-3598

## TABLE OF CONTENTS:

- 1 SUMMARY
- 2 GENERAL INTRODUCTION
- 3 REVIEW OF EXISTING DATA
  - 3.1 Introduction
  - 3.2 North Heemskirk
  - 3.3 South Heemskirk
  - 3.4 Other Minerals
- 4 GRANITE DIMENSION STONE
  - 4.1 Introduction
  - 4.2 Initial Exploration
  - 4.3 Initial Marketing
- 5 FIELD WORK
- 6 CONCLUSIONS AND RECOMMENDATIONS
- 7 APPENDIX
  - 7.1 References
  - 7.2 Map Showing Areas of Interest

## 1 SUMMARY

- 1.1 Most of EL 29/92 is underlain by the Devonian-Carboniferous Heemskirk Granite, a small, partly offshore, pluton with significant tin and sulphide mineralisation (Ag-Pb-Zn) to its credit.
- 1.2 The Heemskirk Granite is composed of at least three major lithological units. Two phases of 'white' granite appear to intrude the red granite.
- 1.3 The Granite itself is perhaps Tasmania's most promising dimension stone resource development. Market research has shown there is a strong buyer interest in red and white varieties of the Heemskirk Granite. There is a stronger interest in the white (biotite) variety. Further evaluation of potential quarry sites in the Tasman River-Foster's Creek area is recommended.
- 1.4 There are five types of mineralisation known to occur. Of these the most important economic variety is the tin-polymetallic sulphide (Ag-Zn rich) mineralisation.
- 1.5 The South Heemskirk area (between Federation, Sweeney's and Globe mines) was extensively explored by Renison in the late 1970's and early 1980's. Tonnage potential exists at Sweeney's, Anomaly 1 and Anomaly 4 (Agnew Grid). The potential is >1,000,000 tonnes at 0.6% Sn, 2% Zn and 30 g/t Ag. Further research is recommended.
- 1.6 The Granite body has an extensive metamorphic aureole. Associated mineralisation is predominantly replacement type skarn or fissure-infilling tin-polymetallic sulphides.
- 1.7 The North Heemskirk area has excellent potential for Renison-style replacement skarn tin-polymetallic sulphide mineralisation. Several smaller replacement-type tin-sulphide mineralised bodies are known adjacent to the northern contact of the Heemskirk Granite. Of these, St.Dizier has indicated reserves of five million tonnes at 0.5% Sn.
- 1.8 In the early 1980's, Geopeko drilled an intense elongate magnetic anomaly near Gourlay's Creek, north of Granville Harbour and established widespread sub-economic tin-sulphide skarn mineralisation. Further research is recommended into this and other geophysical/geochemical anomalies in the North Heemskirk area.
- 1.9 Columbite was discovered in a trench at Allison's Workings, South Heemskirk in 1972. It appears there has been no follow-up investigation of this discovery. A field survey is recommended.

1.10 The area has not been evaluated for its gemstone potential. Topaz, green tourmaline, epidote, garnet, apatite, jasper, rock crystal, prase and zircon have been noted at various locations during the review of existing data. Further research is recommended.

## 2. GENERAL INTRODUCTION

EL 29/92 was issued to Cavenridge Pty Ltd on July 5, 1993.

This report details work undertaken on the area during the first year to June 30, 1994.

This work comprised largely a review of existing data plus field reconnaissance.

## 3. REVIEW OF EXISTING DATA

### 3.1 Introduction

The Heemskirk Granite outcrops as the Heemskirk Range, west of Zeehan on the West Coast of Tasmania. The intrusion is of Devonian/Carboniferous age, and consists of at least three major lithological units. In the upper and eastern part is the red granite, which appears to have been intruded by two phases of 'white' granite in the lower and western part near the coast (and partly offshore).

The Heemskirk Granite is perhaps the best understood of all plutons in Western Tasmania. It has been the subject of a Ph.D. thesis, and numerous other studies by the Department of Mines, universities, mining companies, syndicates and individuals. It is of unquestionable economic significance having sourced the mineralisation of the Zeehan field.

Modern exploration started in the 1950's. A number of geophysical/geochemical anomalies and tin-sulphide mineralised bodies have been identified. These were generally not extensively explored by the larger companies.

The main types of mineralisation have been identified as follows :

1. Cassiterite in greisen veins, pipes and masses of soft greisenised granite, and in quartz-tourmaline-topaz-muscovite alteration in fracture zones.
2. Cassiterite in argillised red granite immediately above the red/white granite contact.

3. As polymetallic veins and bodies, the dominant variety being tin, zinc and silver rich.
4. As replacement in country rocks, usually as pyroxene-garnet skarns with tin as complex borates and silicates.
5. As a result of the above mineralisation, detrital (eluvial) and alluvial deposits of tin occur in valleys to the north and south of the Heemskirk Range.

The prospectivity of the area remains high for tin and base metal deposits.

### 3.2 North Heemskirk

Mineralisation in the area is predominantly replacement type skarn or fissure infilling tin-polymetallic sulphide mineralisation. The area has excellent potential for Renison-style strata-bound replacement ore bodies.

A replacement type magnetite/pyrrhotite skarn ore body has been drilled out at St.Dizier. Indicated reserves are five million tonnes at 0.5% Sn.

The Gourlay's Creek Anomaly was first outlined by a Rio-Tinto Aeromagnetic Survey in 1957. The anomaly was drilled by Geopeko in the early 1980's and widespread, sub-economic tin in replacement type skarn mineralisation was established.

New Holland Mining NL carried out a regional geophysical interpretation and an infill gravity survey in 1988-89 which better defined the granite margin in the area. Near Gourlay's Creek, an irregular zone was defined. The north western extension of the bulbous ribbed irregularity appears to be closely associated with anomalous magnetic responses and pyrrhotite - both indicators of mineralised sites. (Cromer 1989)

Other anomalies in the North Heemskirk area have not been extensively explored by the large companies. They include: Big Rocky Creek, 11000, Dighem 228C & 229A, North West, and Granite Anomalies.

### 3.3 South Heemskirk

The area between the Federation Mine, Sweeney's Mine and the Globe Mine was extensively explored by Renison between 1976 and 1986. Exploration included geophysics (magnetic, electromagnetic, induced polarisation, resistivity, and self-potential surveys), geochemical surveys, and diamond drilling.

Sweeney's Mine was investigated between 1976 and 1979. Eighteen diamond drill holes were drilled into a shallow tabular body and a pipe-feeder at depth. Six of these holes intersected poly-metallic sulphide mineralisation with economically significant tin, zinc and silver grades.

As most of the drill holes were designed to intersect the feeder, little is known about the shape of the upper part of the body. The tonnage potential at Sweeney's has been roughly estimated at 0.5 million tons.

The area between Sweeney's Mine and the Globe Mine was explored between 1980 and 1984. Ten anomalies were identified by geophysics and geochemistry. Subsequent diamond drilling at Anomalies 1 and 4 intersected poly-metallic sulphide mineralisation similar to Sweeney's. Anomaly 1 is similar to Sweeney's, with potential for 400,000 tonnes. Only one hole was drilled at Anomaly 4 so no estimate of the tonnage potential could be made. However, the tonnage potential is expected to be of similar magnitude to Sweeney's and Anomaly 1 (Cartwright 1983).

At Sweeney's, Anomaly 1 and Anomaly 4, two styles of mineralisation were found. One is the tin and silver rich poly-metallic sulphides; the other is tin-bearing but sulphide poor. Geophysical methods would have great difficulty in locating the sulphide poor zones. No deep drilling (200 - 500 metres) has been carried out.

Table I : South Heemskirk Diamond Drilling

Location	No. of holes	Metres	% Sn	% Sol.Sn	% Zn	g/t Ag
Sweeney's	6	199.4	0.60	0.16	1.96	37
Anomaly 1	3	32.0	0.78	0.12	0.97	32
Anomaly 4	1	25.0	0.21	0.02	1.77	32
Average		256.4	0.59	0.14	1.82	38

### 3.4 Other Minerals

Klominsky 1972 reported he had found Columbite in a trench close to Alison's Workings, approximately 1 kilometre north west of the Federation Mine. Abundant crystals of columbite up to 10 mm in size were exposed in quartz-tourmaline vein

structures in the trench. This discovery has not been evaluated by recent explorers.

#### 4 GRANITE DIMENSION STONE

##### 4.1 Introduction

The potential of the Heemskirk Granite as building and ornamental stone was recognised early this century by R.T.Baker (1915). A small amount was mined and shipped from Granville Harbour in the early 1900's. A small quarry was established near Trial Harbour by Dunn Monumental Masons Pty Ltd in 1989. Another small quarry has been established on the Trial Harbour Road in the past two years by Western Red Mining NL. These appear to be the only commercial exploitations of the Granite as dimension stone.

Several different varieties of the granite have been identified. These include whites, greys, speckled whites, greens, pinks, bright reds, dark reds and porphyritic types. All these varieties may be marketed, subject to the establishment of a viable quarrying operation.

##### 4.2 Initial Exploration

Reconnaissance surveys have shown there are three main varieties of the Heemskirk Granite. These are a medium-coarse grained dark red variety, a medium-coarse grained white (biotite) variety and a fine-medium grained white (muscovite) variety. On Exploration Licence 29/92, the most easily accessible of these for development is the medium-coarse grained white. Potential quarry sites have been identified between the Tasman River and Fosters Creek near the coast. Potential quarry sites of the dark red variety are located along the Trial Harbour Road.

Apart from the porphyritic varieties, the stone is predominantly of an equi-granular texture. Joint spacings are generally wide in the medium-course grained varieties, one to eight metres being common in the potential quarry sites identified.

Available data indicate the red granite is of dimension stone quality. Data on the 'white' granite is inconclusive, but core alteration of feldspars is of concern in samples taken from a road cutting. No particularly reactive alteration minerals have been identified. Durability of the red granite appears acceptable, with some stone taken from the Western Red Mining

## 7 APPENDIX

## 7.1 REFERENCES

7.1.1 General Geology

- Bacon, C.A.; 1990; MINERAL EXPLORATION CODE OF PRACTICE; Tasmania Department of Resources and Energy.
- Blissett, A.H.; 1962; GEOLOGICAL SURVEY EXPLANATORY REPORT ONE MILE GEOLOGICAL MAP SERIES K'55-5-50 ZEEHAN; Tasmania Department of Mines.
- Klominsky, J.; 1972; THE HEEMSKIRK GRANITE MASSIF, WESTERN TASMANIA - A STUDY OF CHEMICAL VARIABILITY WITHIN PLUTONIC ROCKS; unpublished Ph.D. thesis; University of Tasmania.
- The Duke of Avram, J; 1992; REPORT ON EL 23/90 HEEMSKIRK AREA; Unpublished report; Cavenridge Pty Ltd.
- Leaman, D.E.; Richardson, R.G.; 1989; THE GRANITES OF WEST AND NORTH WEST TASMANIA - A GEOPHYSICAL INTERPRETATION; Geological Survey Bulletin 66; Tasmania Department of Mines.
- Pemberton, J.; 1991; NOTES ON THE TIN POTENTIAL OF EL 35/90 AND EL 23/90; Tasmania Department of Mines.

7.1.2 North Heemskirk Tin Field

- Waterhouse, L.L.; 1915; RECONNAISSANCE OF THE NORTH HEEMSKIRK TIN FIELD; Geological Survey Report No.6; Department of Mines, Tasmania.
- Heithersay, P.; Sumpton, J.; 1982; PROGRESS REPORT EL 1/77 GRANVILLE EAST PROSPECT GOURLAYS CREEK PROSPECT; Unpublished report; Geopeko.

- Heithersay, P.; 1983; PROGRESS REPORT ON EL 1/77  
GRANVILLE EAST PROSPECT  
"11000" PROSPECT  
BIG ROCKY CREEK PROSPECT;  
unpublished report, Geopeko.
- Kendall, C.; 1984; GOURLAYS CREEK PROSPECT  
GRANVILLE HARBOUR, TASMANIA  
PROGRESS REPORT EL 1/77;  
unpublished report; Geopeko.
- Lewis, P.C.; 1985; EXPLORATION LICENCE 2/85  
NORTH HEEMSKIRK, TASMANIA  
REPORT FOR PERIOD MAY 11TH TO AUGUST  
10TH 1985;  
unpublished report, Gippsland Oil and  
Minerals N.L.
- Cromer, W.C.; 1988; EL 28/87 GRANVILLE HARBOUR, TASMANIA  
ANNUAL REPORT YEAR 1;  
unpublished report; New Holland  
Mining NL.
- Cromer, W.C.; 1989; EL 28/87 GRANVILLE HARBOUR, TASMANIA  
ANNUAL REPORT YEAR 2;  
unpublished report; New Holland  
Mining NL.

### 7.1.3 South Heemskirk Tin Field

- Waterhouse, L.L.; 1916; THE SOUTH HEEMSKIRK TIN FIELD;  
Geological Survey Bulletin No.21;  
Tasmania Department of Mines.
- Loftus-Hills, C.; 1920; FEDERATION TIN MINE, HEEMSKIRK";  
Tasmania Department of Mines.
- Scott, J.B.; 1927; REPORT ON EXTENDED PROSPECTING AREA  
SOUTH HEEMSKIRK IN THE NAME OF  
R.B.HILL;  
Tasmania Department of Mines.
- McIntosh-Reid, A.; 1927; BIRTHDAY MINE, MOUNT AGNEW;  
Tasmania Department of Mines.
- Keid, H.G.W.; 1943; REPORT ON THE SOUTH HEEMSKIRK TIN  
FIELD;  
Tasmania Department of Mines.
- Wells, K.; 1976; REPORT ON THE FEDERATION AREA,  
E.L. 11/76;  
Unpublished report; Renison Ltd.

- Wells, K.; 1977; PROGRESS REPORT, FEDERATION AREA,  
E.L. 11/76;  
Unpublished report; Renison Ltd.
- Wells, K.; 1978 a; GEOLOGY AND MINERALISATION IN THE  
SOUTH HEEMSKIRK TIN FIELD;  
Unpublished M.Sc. thesis; James Cook  
University, North Queensland.
- Wells, K.; 1978 b; FEDERATION AREA, E.L. 11/76  
ANNUAL REPORT 1977 - 78;  
Unpublished report; Renison Ltd.
- Wells, K.; 1979; FEDERATION AREA E.L. 11/76  
ANNUAL REPORT 1978 - 79";  
Unpublished report; Renison Ltd.
- Roberts, P.; 1980; FEDERATION AREA, E.L. 11/76  
ANNUAL REPORT 1979 - 80;  
Unpublished report; Renison Ltd.
- Roberts, P.; 1981; FEDERATION AND TRIAL HARBOUR AREAS  
E.L. 11/76 AND S.P.L. 129  
ANNUAL REPORT 1980 - 81;  
Unpublished report; Renison Ltd.
- Kilpatrick, D.; 1982; FEDERATION AND TRIAL HARBOUR AREAS  
E.L. 11/76 AND S.P.L. 129  
ANNUAL REPORT 1981-82;  
Unpublished report; Renison Ltd.
- Cartwright; A.J.; 1983; E.L. 11/76 FEDERATION AREA  
ANNUAL REPORT, JUNE 1983;  
Unpublished report; Gold Fields  
Exploration Pty Ltd.
- Komyshan, P.; Cartwright, A.J.; Roberts, P.; 1984;  
E.L. 11/76 TRIAL HARBOUR AREA  
ANNUAL REPORT FOR 1983/84;  
Unpublished report; Gold Fields  
Exploration Pty Ltd.

#### 7.1.4 Dimension Stone

Australian Bureau of Statistics;  
IMPORT/EXPORT DATA 1988-1993.

Crawford, D.; Feb.27, 1994;  
MALL JOB JOY FOR GRANITE MINERS;  
The Sunday Tasmanian

- 11 -

- Flynn, D.; 1991; DIMENSION STONE JAPAN '91;  
Central Western Regional Development  
Board, Orange NSW.
- Harries-Rees, K.; Nov.1991;  
DIMENSION STONE REVIEW THE NEW "STONE  
AGE";  
Industrial Minerals.
- International Business Analysis Pty Ltd; 1990;  
INDUSTRY PROFILES  
CONSTRUCTION MATERIALS -  
GRANITE, SLATE & MARBLE;  
Austrade.
- JETRO; Mar.1992; YOUR MARKET IN JAPAN NO.92  
CONSTRUCTION MATERIALS
- Louthean, R.; Jun.22, 1993;  
ROCK SOLID;  
The Bulletin
- Sharples, C.; 1990; THE BUILDING AND ORNAMENTAL STONE  
RESOURCES OF TASMANIA;  
Tasmanian Development Authority /  
Division of Mines and Mineral  
Resources.
- Sharples, C.; 1991; PROPOSED RED GRANITE QUARRY SITES IN  
THE HEEMSKIRK GRANITE, WESTERN  
TASMANIA;  
unpublished report for M.Tseglakoff.
- Smith, M.; 1991; THE DIMENSION STONE INDUSTRY  
A CURRENT PERSPECTIVE;  
Tasmanian Development Authority.
- South Australia Department of Mines and Energy;  
ANNUAL REPORT 1988 - 89.
- South Australian Department of Mines and Energy;  
ANNUAL REPORT 1989 - 90.
- Spry, A.H.; Mason, D.; 1992;  
PRELIMINARY EVALUATION OF HEEMSKIRK  
WHITE GRANITE;  
Amdel Report M5626/92.
- Tasmania Department of Mines;  
ANNUAL REPORT 1988 - 89.

Tasmanian Division of Mines and Mineral Resources;  
ANNUAL REPORT 1989 - 90.

Tradescope; February 1991;  
SURGING DEMAND FOR NATURAL STONE;  
(and other articles); magazine  
published by JETRO Import Promotion  
Department (Japan).

Tradescope; August 1991; JAPAN'S MARBLE AND GRANITE MARKET;  
JETRO Import Promotion Department  
(Japan).

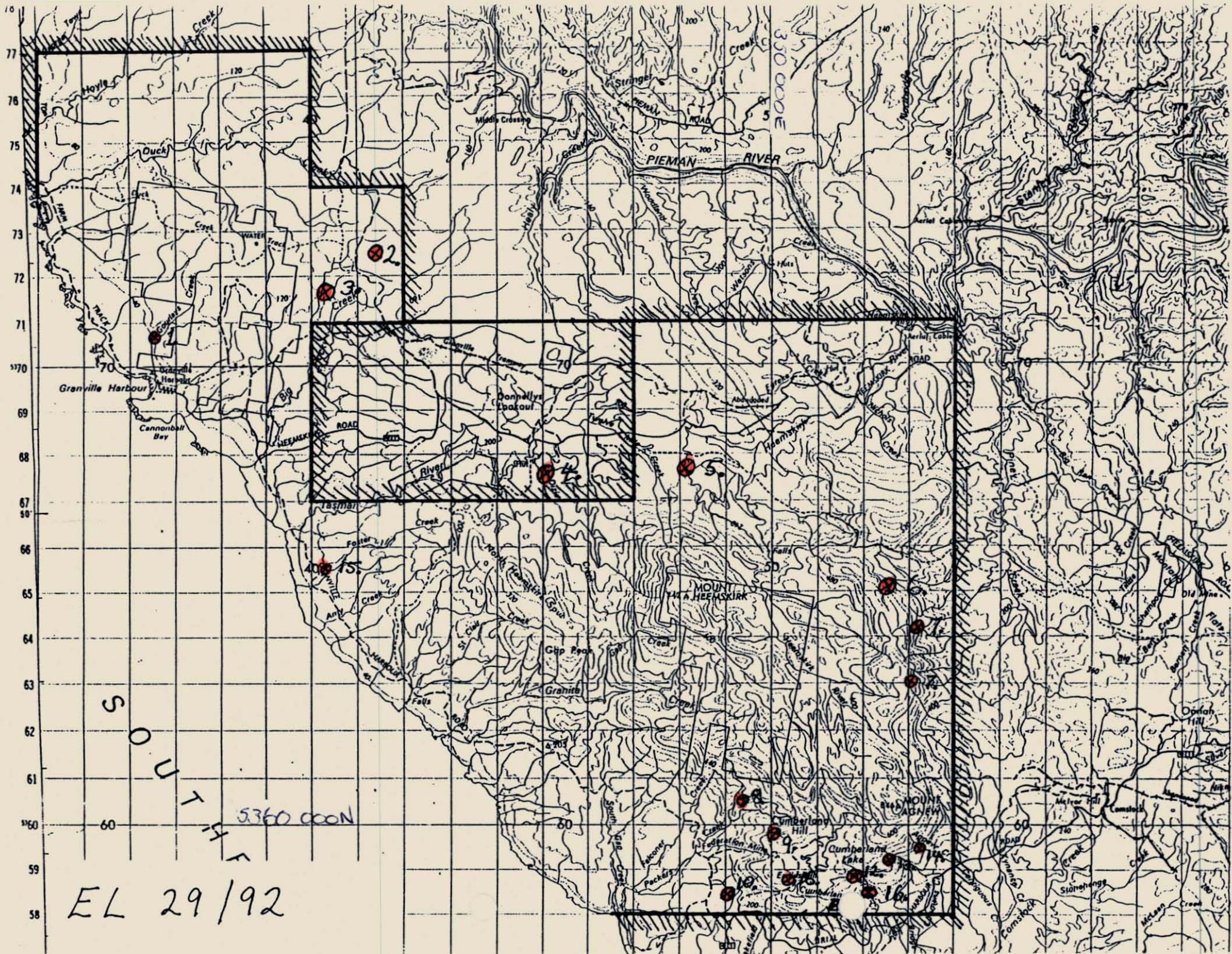
Western Australia Department of Mines;  
ANNUAL REVIEW 1989 - 90.

Westwood, J; Mar. 1991; CALL TO INVEST IN A NEW STONE AGE;  
Building Today.

7.2 Map Showing Areas of Interest

Key to map:

1. Gourlays Creek Anomaly
2. Big Rocky Creek Anomaly
3. 11000 Anomaly
4. St.Dizier Ore Body
5. Dighem 228C & 229A Anomalies
6. North West Anomaly
7. Granite Anomalies
8. Allison's Workings
9. Federation Mine
10. Montague Mine
11. Sweeney's Mine
12. Anomaly 1 (Agnew Grid)
13. Anomaly 4 (Agnew Grid)
14. Globe Mine
15. Prospective Area for White Granite
16. Prospective Area for Red Granite



EL 29/92

SOUTH  
5360 000N

300 000E

SCALE 1:100 000

5 cm

890014

Addendum

## 8. THE JAPANESE MARKET FOR GRANITE

8.1 The Japanese Market and Description

The history of Japanese building stone dates back to around 1890 when full scale importation of western civilisation began. After World War II, in particular construction of buildings increased in line with high economic growth, and the building stone market expanded.

Granite is used in slab and block form for tomb stones and the interior and exterior of buildings, it has excellent fire resistance properties, durability and compressive strength. Various craft ornaments use granite because of its design features and its high class appeal.

8.2 Market Scale

According to the inter-industry relations table the market scale of aggregate and stone in which stone is included amounts to 228.6 billion Yen of which 26.5 billion is for imports. The proportion of aggregate and stone products in the total construction market is about 3.4%

TABLE 1 MARKET SCALE OF BUILDINGS MATERIALS AND EQUIPMENT (as of 1987)

FOR STONE AND AGGREGATE		(MILLION YEN)	
SECTION	FIELD	MATERIAL INPUT	IMPORTS
BUILDING	NEW HOUSING (TIMBER)	49,430	5,729
	NEW HOUSING (NON TIMBER)	36,363	4,219
	NEW NON-HOUSING (TIMBER)	4,011	465
	NEW NON-HOUSING (NON TIMBER)	47,176	5,469
	SUB TOTAL	136,980	15,879
REPAIR WORK		4,106	476
CIVIL ENGINEER- ING	ROAD	10,627	1,231
	RIVER SEWERAGE	12,700	1,471
	AGRICULTURE	7,970	923
	RAILWAYS	3,181	369
	ELECTRICAL POWER FACILITY	13	1
	TELECOMMUNICATION FACILITY	1,432	166
	OTHER CIVIL ENGINEERING WORKS	51,633	5,985
	SUB TOTAL	87,556	10,146
CONSTRUCTION	INDUSTRY TOTAL	228,642	26,501

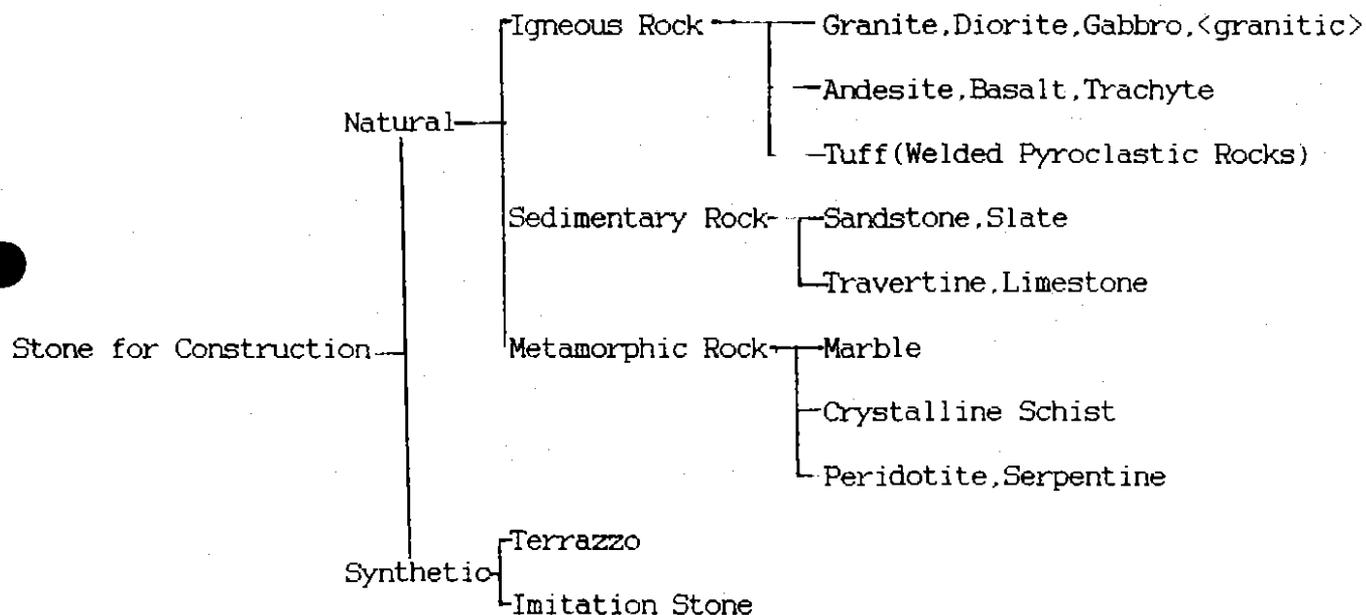
SOURCE: ADMINISTRATIVE MANAGEMENT AGENCY

THESE FIGURES ARE ONLY COLLECTED EVERY SEVEN YEARS. NO FIGURES FOR MONUMENTAL INDUSTRY.

NOTE: FROM 1985 TO 1990 IMPORTS OF UNWORKED GRANITE ROSE BY 13%. 1985 WAS 21,900 MILLION YEN. 1990 WAS 40,300 MILLION YEN. THIS WAS FOR BUILDING STONE ONLY.

### 8.3 Stone Types and Standards

The standard for category shape and material are stipulated in the JIS A5003.



SOURCE: GEOLOGY NEWS, JULY 1991 EDITION.

### 8.4 Supply Trends

The stone processing in Japan is worth approx. 389 billion Yen in total about 4.86 billion Australian \$. According to industry figures 40% is used in building and 60% is used for Monuments and tombs. There are 2,154 business in Japan for stone, only six have over 100 employees, while 1,529 have less than nine employees, that is 42% of the total. No young people are entering the industry as it is seen as dirty and hard work. this is a serious problem in Japan.

Stone is produced all over Japan but are concentrated in the Seino region around Ogaki City in the western part of Gifu. About 70% of domestic production of construction stone is produced in Gifu prefecture.

Stone Product Manufacturers	No. of Establishments	No. of Employees	Despatches (Million Yen)	Added Value (Million Yen)
1985	2,129	21,300	250,733	129,627
1986	2,085	21,769	270,951	139,398
1987	2,013	21,864	296,024	157,070
1988	2,242	23,224	342,388	185,953
1989	2,142	23,152	389,478	205,120

SOURCE: INDUSTRIAL CENSUS MITI.

The peak of Japanese domestic quarrying was from mid 1950's to the 1960's, since the 1970's stone imports have been rising to meet increasing demands. Labour problems and environmental concerns gives the background for stone imports increasing particularly in the areas of high-class stone materials again. I will stress that new workers are reluctant to move into an industry typified by the 3 D', dangerous, dirty and demanding. This is true in any of the quarrying, processing, or fitting industries and in the fitting industry delivery delays have become a problem due to the nationwide lack of experienced workers. These facts have made an opportunity for companies to enter the Japanese market.

#### 8.5 Trends in Consumption

In Japan 2,202,439 m/sq of granite was laid in 1989, of this we shall look at Table 3 for Granite.

TABLE 3

#### TRENDS IN CONSTRUCTION CONSUMPTION FOR GRANITE

UNITS M/SQ	1987	1988	1989	ANNUAL GROWTH RATE AVERAGE (1989/1987)
DOMESTIC PRODUCTION	1,418,245	1,469,200	1,967,818	17.8
IMPORTS	172,915	103,726	234,621	16.5
SUB TOTAL	1,591,160	1,572,926	2,202,439	17.7

SOURCE: THE BUILDING STONE ASSOCIATION OF JAPAN 1992.

Japan demands high quality and standards are high, patchwork patterns must be avoided and there should be no flaws, most companies newly have difficulty with this.

#### 8.6 Trends in Imports

Japan imports from over 30 countries with Italy being the biggest importer to Japan, in 1990; 39,890 million Yen's worth, while stone

imports was 59,770 million Yen, approx. 1.2 billion Australian \$.

There are three ways to import granite, unworked stone, semi-processed stone (in slab and sheets) and as end product (polished form). Due to rising pressure in Japan of processing costs, value adding is done in Asia and South America with lower labour costs.

#### 8.7 Conclusion and Recommendations

The following factors are behind the increase in granite imports to Japan.

1. The decline in domestic production for reasons such as the exhaustion of resources, environmental protection policies, problems of labour and an increase in quarrying costs.
2. Because of the great diversification and need for high-class colours and materials, those procured domestically can no longer meet all the requirements.
3. Since the quarrying business requires relatively little investment in facilities and abundant resources, Japan can no longer supply the resources.
4. It is therefore recommended that we proceed with the next stage, in the second year, with a completed business plan, for this granite export proposal.